

*We claim:*

1. A method for installing a barrier, comprising:  
providing a first structure having a hole, or providing a first structure  
and a second structure defining therebetween a gap;

5 introducing into said hole or gap at least one barrier molding bag that  
is operative to receive and substantially to contain a flowable firestop  
material; and

introducing, into said at least one barrier molding bag, a flowable  
firestop material, thereby creating a barrier in said hole or gap.

10 2. The method of claim 1 wherein said first structure is a vertical  
wall.

3. The method of claim 2 wherein said vertical wall comprises  
gypsum board supported by framework.

15 4. The method of claim 1 wherein said first structure is a wall and  
said second structure is a floor.

5. The method of claim 4 said vertical wall comprises gypsum  
board supported by framework, and said ceiling comprises fluted metal.

6. The method of claim 4 wherein said second structure is a floor.

20 7. The method of claim 1 wherein said first and second structures  
are walls defining therebetween a gap.

8. The method of claim 1 wherein said flowable firestop material  
comprises a hydratable cementitious slurry comprising Portland cement,  
gypsum, or mixture thereof.

25 9. The method of claim 8 wherein said hydratable cementitious  
slurry, and said slurry contains Portland cement.

10. The method of claim 8 wherein said flowable firestop material  
further comprises at least one admixture selected from set accelerators, set  
retarders, water reducers, superplasticizers, fluidity enhancing agents,

rheology modifiers, air entraining agents, pigments or colorants, aggregates, fibers, rheopectic agents, surfactants, antibacterial agents, or mixture thereof.

11. The method of claim 8 wherein said hydratable cementitious slurry further comprises an air entraining agent and a water reducing agent.

5 12. The method of claim 1 wherein said flowable firestop material comprises an intumescent material.

13. The method of claim 1 wherein said flowable firestop material comprises a superabsorbent polymer, a desiccant, hydrated silica gel, or mixture thereof.

10 14. The method of claim 1 wherein said barrier molding bag is constructed from paper, waxed paper, coated paper, cotton, jute, plastic film, felt, woven fabric, nonwoven fabric, or a mixture thereof.

15. The method of claim 14 wherein said barrier molding bag is constructed essentially from plastic film.

15 16. The method of claim 15 wherein plastic is selected from polyethylene, polypropylene, polyvinyl chloride, and a mixture thereof.

17. The method of claim 15 wherein said plastic film is substantially transparent.

18. The method of claim 15 wherein said barrier molding bag is  
20 constructed of a first plastic film and a second plastic film heat-sealed together to form said bag.

19. The method of claim 1 wherein at least one of said plastic films comprises at least one folded pleat.

20. The method of claim 1 wherein said at least one barrier molding  
25 bag comprises a series of pleats or a plurality of crinkles.

21. The method of claim 1 or 15 wherein said barrier molding bag has a generally elongated body having opposed longitudinally extending first and second edges, said molding bag further having a plurality of holes along

said elongated body to facilitate evacuation of air when a flowable firestop material is introduced into said molding bag.

22. The method of claim 21 wherein said barrier molding bag has at least one inlet located along at least one of said edges for permitting flowable fireproofing material to be introduced into said bag.

23. The method of claim 22 wherein said barrier molding bag has at least one inlet located along each of said first and second longitudinally extending edges.

24. The method of claim 23, for installing a barrier in a head of wall joint, wherein said barrier molding bag has inlet flap members for allowing flowable firestop material to flow into said molding bag.

25. The method of claim 1 wherein said barrier molding bag has at least two compartments connected to each other to permit flowable fireproofing material introduced into a first of said compartments to flow into the second of said compartments.

26. The method of claim 1 wherein said first introducing step comprises introducing a first barrier molding bag connected to a second barrier molding bag, whereby flowable firestop material introduced into a first of said molding bags flows into the connected molding bag.

27. The method of claim 1 wherein said barrier molding bag is inserted into a hole of a structure, said structure hole having pipe, duct, cable, wire, or electrical panel located therein.

28. The method of claim 1 wherein said flowable firestop material is allowed to harden.

29. A barrier comprising a bag having firestop material made in accordance with the method of claim 1.

30. The barrier of claim 29 wherein said molding bag contains hardened firestop material having a fire endurance, when tested in accordance with UL 2079, of at least 60 minutes.

31. The barrier of claim 29, wherein said molding bag containing hardened firestop material is capable of avoiding failure when subjected to a hose stream test in accordance with UL 2079 in at least one of the hourly fire rating times indicated below:

Hourly fire rating time, minutes	Water pressure at base of nozzle, Psi (kPa)		Duration of application, seconds per square foot (s/m <sup>2</sup> ) of exposed area <sup>a</sup>	
240 • time < 480	45	(310)	3.0	(32)
120 • time < 240	30	(210)	1.5	(16)
90 • time < 120	30	(210)	0.90	(9.7)
time < 90	30	(210)	0.60	(6.5)
<sup>a</sup> The rectangular area of the structure in which the joint system is mounted is to be considered as the exposed area, as the hose stream must traverse this calculated area during application.				

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32. The barrier of claim 30 wherein said molding bag contains hardened firestop material having a fire endurance, when tested in accordance with UL 2079, of at least 120 minutes.

33. A joint assembly comprising at least two adjoining structures defining therebetween a gap, said gap containing a barrier made in accordance with the method of claim 1.

34. A firestop molding bag, comprising: a first face, a second face, said first and second faces being connected to each other around peripheral edges thereby defining a bag enclosure for receiving a flowable fireproofing material, at least one of said first and second faces having a plurality of holes operative to release air pressure when said bag enclosure is filled with a flowable fireproofing material; said bag having a generally elongate body defined by a length dimension that exceeds a width dimension, at least one of said first and second faces having pleats or crinkles oriented perpendicularly with respect to said length dimension, said pleats or crinkles operative to permit expansion of the bag when flowable fireproofing material is introduced.

35. The barrier molding bag of claim 34 wherein at least one of said first and second faces comprises a transparent plastic film, said bag further having at least one inlet for introducing into said bag a flowable fireproofing material.

5 36. The barrier molding bag of claim 34 wherein said bag has two opposed ends defining therebetween an elongated body, said elongated body having opposed longitudinally extending seams, and at least one inlet located along each of said opposed longitudinally extending seams to permit a flowable fireproofing material to be introduced into said bag.

10 37. The barrier molding bag of claim 34 wherein said pleats or crinkles are attached to an elastic band.

38. The barrier molding bag of claim 34 further wherein said bag is attached to a support strip extending along said elongated body.

15 39. The method of claim 5 further comprising providing a support strip to support said molding bag when positioned over the top of a wall.

40. The method of claim 1 further comprising attaching a ribbon element to the bag and to at least one building structure adjacent to said bag, so as to provide a further barrier to penetration by fire and/or smoke.

20 41. The method of claim 20, wherein said pleats or crinkles are formed by attaching an elastic material, while said elastic is in stretch mode, to a sheet component of said molding bag.

42. The barrier molding bag of claim 34 having at least one end at which said faces are each attached to an end wall having at least one pleat or plurality of crinkles to permit expansion of said bag at said at least one end.

25 43. An exemplary barrier assembly, comprising a bag having an inlet for receiving a flowable firestop material, a support strip for supporting the bag when installed in a head of wall joint, and a liner sheet.

44. The barrier assembly of claim 43 wherein said bag, support strip, and liner sheet are attached together as an integral unit.

30 45. The barrier assembly of claim 44 wherein said support strip is attached between said bag and liner sheet.

46. The method of claim 1 wherein said bag is inserted into a "U" shaped track and affixed to a fluted metal ceiling.